EFFECT OF SOCCER SPECIFIC FUN GAMES AND COACHING DRILLS ON NUROMUSCULAR FITNESS AND PLAYING ABILITY OF SCHOOL GOING CHILDREN

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A SYNOPSIS

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Introduction

Children benefit in many ways from playing games if the games are appropriate for the child's mental and physical development. Chances are good that the child will have a positive experience in the games.

Most young children from ages 5 to 8 like to run, jump, roll, climb, skip, fall down and shout while involved in play. All this makes a strong case for them to play soccer. This behavior should be considered when adults set up a playing environment.

Activities should fit the developmental levels of the children. Avoid the opposite approach of having the children fit the activities. If an activity does not fit the needs of the child, the child will show either frustration if it is too difficult or boredom if it is too easy. Coaches should be well aware of a child's varying developmental levels and how their development affects the way they play soccer.

Soccer is natural for young children because soccer players experience body awareness and they use various body parts. How they use balance, agility, coordination, vision and social interaction can determine how they develop physical and social skills.

As players get older, their development (i.e. psychomotor, cognitive and psychosocial) levels mature. This growth allows coaches to create more complexities in the training environment. For example, under-6 players must each have a ball; under-8 players should use one ball in pairs; under-10 can share one ball among four players and one ball for eight players is appropriate for under-12 players. The imbalance of more players and fewer balls forces more abstract thinking by the players. Remember, in games soccer coaches can't stop the run of play to get everybody on the same page.

Richard Schmidt, a motor learning and motor development expert, developed a schema theory (1975, 2000), which suggests that children up to age 14 should experience a wide range of movement in early life to aid in solving future movement challenges. "When people practice a number of specific throwing distances, they learn something that allows them to generalize this experience to the performance of many throwing distances."

Child-centered coaching places a high priority on the total development of the young athlete. The early specialization of sport skills has a limiting effect on child development. Sport skills require specific motor patterns and a child should be exposed to a wide range of movement experiences early in life. A

great basketball player doesn't necessarily have the skills to be a great baseball player at early ages. Does the name Michael Jordan ring a bell?

When developing youth soccer players, apply the schema theory by presenting a wide range of movement activities and challenges during practices.

The principles of youth coaching are guidelines developed as a foundation or a sounding board to assess the appropriateness of an activity or training session. The following six principles are presented so that youth players receive a healthy and positive youth soccer experience are developmentally Appropriate, Clear, Concise and Correct Information, Simple to Complex, Safe and Appropriate Training Area, Decision Making, Implications for the Game.

The game/activity approach is a dynamic instructional method that allows the participant to fully experience the sport. It is not the "just let them play," approach. Proper technical execution is not important. Technique will improve with practice and experience.

Since children need to make decisions, exert them physically, perform technical skills and, most importantly, have fun researchers felt worthwhile to investigate the effect of soccer specific coaching drills and related fun games on development of neuromuscular fitness as well as technical skills.

Statement of the Problem

The purpose of the study is to assess the effect of soccer specific drills and fun games on development of neuromuscular fitness and soccer playing ability of school going children of under-14.

The Objectives of the Study

1. To find out the level of neuromuscular fitness of under-14 children changes through different phases of coaching period.

2. To find out the rate of improvement of technical skill ability/playing ability during the coaching phase.

Delimitations

1) Sixty subjects will be selected from Gems Akademia International School, Kolkata.

2) The age of the subjects will be ranged from 10 to 14 years.

3) The subjects will be divided at random into two groups i.e (30 EG and 30 CG).

4) The coaching period -will be six (06) weeks long.

5) During the coaching period, the data will be collected on the selected variables at the end of first four week and after 8 week.

Limitations

1) Psychological factors, food habits, rest period, life style etc., could not be controlled.

2) The weather conditions such as atmospheric temperature, humidity and meteorological factors during testing and training periods were also not considered.

3) Though the subjects were motivated verbally no attempt was made to differentiate the motivation levels during the period of training and testing.

4) The previous experience of the subjects in the field of sports and games, which might influence the training and data, was not considered.

Hypotheses

H_1 The coaching drills and fun games effects will significantly increase the neuromuscular fitness of the U-14 school children.

H_2 Individuals will develop the technical skill ability during the coaching period.

Definition and Explanation of the terms:

Neuromuscular Fitness: Muscular and motor fitness (jointly referred to as neuromuscular fitness (NMF) consists of muscle power, muscle strength, muscle endurance, agility, balance, coordination and speed of movement (Bouchard C, 1994).

Soccer : a form of football played between two teams of 11 players, in which the ball may be advanced by kicking or by bouncing it off any part of the body but the arms and hands, except in the case of the goalkeepers, who may use their hands to catch, carry, throw, or stop the ball. (**1890-1895; Association football**)

Coaching Drills and Fun Games: Soccer "Fun Games" are intended to provide youth with an atmosphere of enjoyment and whimsy while learning skills and teamwork. Many of these games can be introduced without using balls at first, either for ease of instruction or as a warm-up activity, and then balls can be added. In addition, a number of these games may be used as skill drills. (John Harves, 2005)

Significance of the Study

1. The study will develop the coaches' knowledge and understanding of the child centric soccer game.

2. The study will be used as a model for child coaching education materials in India.

3. The study will reveal the facts of the neuromuscular fitness responses of school going children arisen out of neuro muscular adaptations due to soccer specific coaching drills and fun games.

4. The study may add knowledge to Physical Educators and Coaches to prepare various coaching drills in soccer.

5. The study may be used to implement modern and relevant age appropriate soccer coaching programme and initiatives to promote long term player development in our state.

6. To cultivate a culture of coaches whose foundation is built on best practices.

Chapter-II

REVIEW OF LITERATURE

Richard L. Light, 2004 in a study titled Coaches' experiences of game sense: opportunities and challenges where they draws on a series of interviews conducted in 2002 with practising Australian coaches working with an Australian variant of TGfU, Game Sense. It examines their experiences of Game Sense in a range of sports played from introductory, grassroots levels to sport played at the most elite levels. The views of the coaches in the study lend support to recent literature on tactical approaches to teaching/coaching sport indicating the propensity for tactical approaches such as Game Sense to provide opportunities for coaches to develop more complete players than is possible with technique-focused approaches. The coaches' experiences also suggest that there is a range of challenges involved in the implementation of Game Sense.

Evans, John R. 2006, in a study titled Elite level rugby coaches interpretation and use of game sense inquiring into the impact that Game Sense and game-based training has had on elite level rugby coaching in Australia this paper highlights the complexity of coaching as a social process. Using a case study approach it draws on a series of interviews conducted in 2005 with four elite level rugby coaches in Australia to inquire into the ways in which they interpret the term Games sense and the influence that it has had on their approaches to training. While the coaches in this study use games in their training and see it as a valuable part of their training regimes they do not actually take up Game Sense pedagogy. This study suggests that their reluctance to take up the pedagogy of Game Sense was largely due to the ways in which it created a 'cognitive dissonance' (Butler, 2005) with their beliefs about good coaching. More specifically it suggests that the player centred, inquiry based approach of Game Sense was at odds with their common sense assumptions about learning developed through their involvement in sport.

Zuccolo, A. S. H. L. E. I. G. H., Spittle, M., & Pill, S. H. A. N. E. (2014), studied the Game Sense Research in Coaching: Findings and Reflections where they depicts an analysis of the data driven Game Sense research in coaching and the professional literature advocating Game Sense coaching, with the purpose of establishing the similarities, differences and emerging patterns of the research conducted this far. A systematic review of the studies will be conducted. Findings of this study will provide information on how the Game Sense approach is, and has been, used in coaching currently, as well as the uncertainties and ambiguities surrounding the Game Sense approach that have emerged from this research. Benefits and limitations of the Game Sense approach will also be identified, along with the

views and attitudes of those involved in implementing the Game Sense approach in coaching practice. This information will inform the future research agenda of Game Sense research in coaching.

Asier Los Arcos, 2014 in a study the effects of 2 strength and conditioning programs involving either purely vertically oriented or combining vertically and horizontally oriented exercises on soccer-relevant performance variables (ie, acceleration, jumping ability, peak power, and endurance). Twenty-two professional male soccer players were randomly assigned to 2 training groups: vertical strength (VS, n = 11) and vertical and horizontal strength (VHS, n = 11). Players trained 2 times per week during all the preseason (5 wk) and 3 weeks of the competitive season. The effect of the training protocols was assessed using doubleand single-leg vertical countermovement jumps (CMJ), half-squat peak power (PP), sprint performance over 5 and 15 m, and blood lactate concentration at selected running speeds. Both groups obtained significant improvements in PP ($P < .05$; ES = 0.87 and 0.80 for VS and VHS, respectively) and small practical improvements in 5-m- ($P < .05$; ES = 0.27 and 0.25 for VS and VHS, respectively) and 15-m-sprint time ($P < .05$; ES = 0.19 and 0.24 for VS and VHS, respectively). The CMJ performance showed a small improvement ($P < .05$, ES = 0.34) only in the VHS group. Submaximal aerobic-fitness changes were similar in both groups ($P < .05$; ES = 1.89 and 0 .71 for VS and VHS, respectively). This study provided a small amount of practical evidence for the consideration of preseason training protocols that combine exercises for vertical- and horizontal-axis strength development in professional male soccer players. Further studies using more aggressive training protocols involving horizontally oriented conditioning exercises are warranted.

Holt, J. E., Ward, P., & Wallhead, T. L. (2006) examine the transfer of learning from closely aligned practices to game play in soccer. More specifically, one purpose was to measure the learning of specific tactical responses from participation and instruction in play practices. A second purpose was to measure the transfer of learning from practice to game play. Finally, this study measured the effect of the sequence of presentation of two closely aligned practices on learning and performance in soccer. Two coeducational soccer classes in the Basic Instruction Program at a large University in the Midwest United States. Each class met once or twice a week during the spring term for a total of 14 sessions. Six participants; one male and two female students were selected from each class on the basis of their low to moderate soccer playing ability. An experienced teacher and soccer coach instructed both classes on how to perform effectively in attacking situations with more attackers than defenders (attacking overloads). The same 2v1 and 3v2 play practices were used in both classes to provide opportunities to

learn the appropriate tactical responses. In each class session, the 2v1 or 3v2 practice was immediately followed by a 4v4 game to assess the transfer of learning from practice to game. Class one participated in 2v1 practices prior to the 3v2, while Class Two participated in the reverse sequence. A multiple treatment, single subject design was used to assess the effect of the Play Practices and their sequence on the learning and performance of each participant in the two soccer classes. This design allows sequence effects on the learning of participants to be both demonstrated and explained. A-B-C-A and A-C-B-A designs were used in Class One and Class Two respectively. Instruction via these play practices was successful for the most able participants, who learnt to perform the appropriate tactical responses consistently in practice, which transferred effectively to the game. While the instructor was confident that all participants knew the appropriate responses, the less able participants were unable to perform these with consistency during practice, hence minimal transfer to the game occurred. Data from three participants indicated that the 3v2 practice tended to produce a greater transfer to the game but the sequence of practice presentation did not appear to impact learning. Findings suggested that practice performance beyond 70% correct was required before learning would transfer to other settings. Launder's notion of alignment was extended to include subtle variations within a practice task to replicate the full range of situations that arise in a game. The need for timely and accurate feedback for the efficient learning of each novice performer was highlighted from video replay. Research to address this common problem of group instruction to prevent the practising of small but significant mistakes is needed.

Chapter-III

METHODOLOGY

Subjects

For the purpose of the study 60 boys school students will be selected at random from Gems Akademia International School, Kolkata, West Bengal, India. The age of subjects will be ranged between 10 and 14 years.

Criterion Measures

The test items to be used for this study will be standardized and appropriate for the neuro muscular fitness on selected parameters and soccer playing ability on selected skills. The criterion measures are presented in the **table-1**.

TABLE-1

TESTS SELECTION

Neuromuscular Fitness

Sl.No	Criterion Variables	Test Items	Criterion Measures
1	Speed	20 mt	Second
2	Agility	Shuttle run	Second
3	Power	Counter movement jump	Centimeter
6	Muscular Endurance	Sit up test	Numbers in 1 mins
7	Body Composition	Height Weight	Meter Kilograms

Playing ability

Sl.No	Soccer-specific skills	Test Items
1	Dribbling	Slalom dribble Test
2	Lob Pass	Lob pass Test
3	Shooting	Shooting accuracy Test

Design of Study

The experimental design to be used in this study is pretest-posttest design. The subjects will be divided at random into one experimental group and a control group. The experimental Group (GE) underwent the coaching programme while the other served as control (GC). The coaching intervention will be of six weeks, three days in a week with duration of 60 minutes per day.

Training Programme

The following programme will be of six weeks long, consists of fun games sessions related to soccer specific skills followed by soccer specific drills sessions per week. The programme starts relatively easy and gets progressively harder.

The coaching intervention will be depends upon the age, interest and purpose of each coaching session and will be progressed in a systematic manner. Overall volume, intensity and rest also varied over every 2 week phase:

a) Phase I focused on general adaptation and introduction;
b) Phase II focused on a gradual increase on sets and repetitions;
c) Phase III focused on a gradual increase in intensity and less volume;
d) Phase IV focused on the final preparation for the tests and tapering.

The overall coaching schedule for the children will be progressed gradually from week #1 to week #6.

Instrument and tools to be used

The instrument and tools to be used for this study are presented in the **table-2.**

TABLE-2

INSTRUMENT AND TOOLS USED

S.No	Test Items	Instrument and Tools
1	20 yard Dash	Stopwatch
2	Shuttle run	Stopwatch
3	Counter Movement Jump	Flexible Steel Tape
4	Muscular Endurance	Sit up Test
5	Height Weight	Stadiometer Weighing Machine
6	Playing ability	Soccer ball, Cones, Stopwatch, Tape.

Testing Techniques

1. **Height**

   Purpose

   To measure the height of the subjects.

   Equipments used

   Stadiometer, score sheet and piece of chalk were used.

   Procedure

   The subject stood on the stadiometer with barefoot. At the time of measuring the heels were on the platform without elevating it. The scale was brought down firmly in conduct with vertex. A mark was made with chalk piece on the side of the scale on the stadiometer. After that the subject stepped away from the stadiometer stand board and measurement was taken.

   Scoring

   The vertical distances from the stadiometer stand board to chalk

   piece mark was measured. The measurement was taken to the nearest one centimeter. **(Johnson and Nelson, 1988)**

2. **Body Mass/ Weight**

   Purpose

   The purpose of the test was to measure the weight of the subject.

   Equipments used

   Weighing machine, and score sheet.

   Procedure:

   The subject stood on the weighing machine with barefoot and with minimum clothing. The heels were on the weighing machine without elevating it and the body was kept at erect position. After the scale vibration was stopped the reading was recorded in kilograms.

   Scoring:

   The weight was recorded to the nearest to a kilogram. **(Johnson and Nelson, 1988)**

3. **30 mt. Dash (Speed)**

   Purpose

   To assess Speed

   Equipments used

   Measuring tape, starting clapper, stopwatch

Procedure

The standing start method was adopted for this purpose. The time from the 'clap' to the runner crossing the finish line was taken as the test score.

Rules

The score is the amount of time between the starter's signal and the instant the pupil crosses the finish line.

Scoring

Record in seconds to the nearest tenth of a second.

4. **The Right-Boomerang Run test**

Purpose

To assess Agility

Equipments used

Measuring tape, starting clapper, stopwatch, Cones

Reliability and Validity

The test has a reported reliability of .92 to .93 and a validity of.72 to .82.

Procedure

The agility course will consist of cones, placed 15 feet apart. On hearing the signal "Go," the participant will run to the center station. The participant then made a quarter right turn, run to and around the first outside station, returned to the center, made another quarter turn, and continued through the course. The participant was allowed to jog through the course until he or she became familiar with the pattern. Running as hard as possible across the finish line and taking care not to touch any of the cones was emphasized.

Scoring

The score will be measured as the time taken to complete the course to the nearest tenth of a second. The participant performed 2 trials and the average score will be used for analyses. (**Jatin P. Ambegaonkar, 2011**)

5. **Sergent Jump (Power):**

Purpose

To measure power.

Equipments used

A wall, Measuring Tape, Chalk.

Procedure

The athlete chalks the end of his fingertips stands side onto the wall, keeping both feet remaining on the ground, reaches up as high as possible with one hand and marks the wall with the tips of the fingers (M1) from a static position jumps as high as possible and marks the wall with the chalk on his fingertips (M2). The test can be performed as many times as the athlete wishes.

Scoring

The measurement will be the distance from M1 to M2 to the nearest centimeter.

Playing ability

1. **The slalom dribble Test**: The slalom dribble required players to navigate a ball around nine cones (2 m apart) from the start to end lines and return (better of two trials).
2. **The lob pass:** The lob pass required the player to kick a soccer ball from a distance of 20 m into an area divided into three concentric circles (3, 6 and 9.15 m in diameter). Each kick was scored by the circle in which the ball initially landed (3, 2 and 1 points, respectively). Ten attempts (five with each foot) were allowed with a maximum of 30 points.
3. **Shooting accuracy Test**: Shooting accuracy required the player to kick the ball at a 16 m wide goal target from a distance of 20 m. The goal was divided into five parallel goals: centre, 2 m wide (3 points); two areas 3 m on each side of the centre (2 points); and two areas 4 m wide at each extreme (1 point). Ten shots (five with each foot) were allowed with a maximum of 30 points.

Procedure of Collection of Data

All the subjects of Experimental and Control groups were tested before starting the Coaching intervention period and at the end of 6th week of the experimental period to observe the fitness and technique development, if any. However, experimental treatment was given to the experimental group only.

Analytical Procedure

In order to test the homogeneity of the subjects descriptive statistics applied, to test the effect of training, the collected data from the two groups before and after experimentation on neuromuscular variables and playing ability were statistically analyzed by using Paired T-test (**SPSS, version 17.0 inc, Chicago IL,USA**). The level of confidence is fixed at 0.05 to test the significance. To determine the rate of improvement during coaching period percentage method will be applied.

KEY WORDS:

SOCCER, FUN GAMES, COACHING DRILLS, NUROMUSCULAR FITNESS, PLAYING ABILITY, CHILDREN

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